

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Independent claims 1 and 8 have been amended to clarify that a plurality of frames are assembled back into a multiplexed frame based on a reference clock with respect to virtual containers at the respective channels included in the plurality of frames including the plurality of low capacity virtual containers. As recited in amended independent claims 1 and 8, the plurality of frames are received in accordance with transmission states at the respective channels.

Similarly, independent claim 15 has been amended to recite that the frame assembling unit assembles the plurality of frames back into a multiplexed frame in accordance with transmission states of the respective channels and based on the reference clock from the reference clock generating unit with respect to the virtual containers at the respective channels included in the plurality of the frames received corresponding to the plurality of channels by the plurality of frame receiving units.

In addition, amended independent claims 1, 8 and 15 clarify that the factors at the respective channels which are respectively included in the plurality of frames (or channels)

contained/included in the assembled multiplexed frame, are successively detected.

Still further, independent claims 1, 8 and 15 have been amended to avoid reciting "correcting" the plurality of pointer values.

Claims 7, 14 and 20, moreover, have been amended to better accord with their respective amended independent claims.

Claims 9 and 10 have been amended to better accord with amended independent claim 8, and claims 11-13 have been amended to delete ", as factors of the respective channels to be objects for the delay absorption processings,".

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

THE PRIOR ART REJECTION

Claims 1-20 were again rejected under 35 USC 103 as being obvious in view of the combination of US 2003/0012188 ("Zelig et al") and US 2001/0008536 ("Kibe"). These rejections, however, are again respectfully traversed with respect to the claims as amended hereinabove.

The present invention as recited in amended independent claims 1, 8 and 15 provides a technique for determining transmission delays between channels and a variation in phase by

confirming a transmission state of a communication network while associating a pointer value indicating the transmission state with each channel in the case where transmission is carried out by virtual concatenation in a SONET/SDH transmission system.

More specifically, in digital data transmission, there is a virtual concatenation system, in which large (high) capacity data is transmitted by efficiently utilizing an existing communication network. That is, large capacity data is divided and contained into a plurality of small (low) capacity virtual containers, and after the low capacity data contained in the low capacity virtual containers are transmitted via a plurality of channels, the data is correctly assembled and multiplexed to be transmitted to a large capacity channel. The respective channels configuring the existing network have respectively different transmission capacities and different transmission distances. Therefore, it is important to predetermine the transmission delays between the respective channels and the amount of variations in phase. When the transmission delays between the channels are at least a predetermined amount of time, the divided virtual containers cannot be correctly assembled into the original frame, thereby causing communication errors.

According to the present invention as recited in amended independent claims 1, 8 and 15, pointer values (channel pointer values) indicating transmission states of the channels in the

communication network operating under the virtual concatenation system, that is, transmission delays and variations in phase due to difference in clock between each of small capacity channels and a large capacity channel, are associated with the respective channels so as to enable visual monitoring. In addition, according to the present invention as recited in amended independent claims 1, 8 and 15, frames received from a plurality of channels are assembled back into a large capacity (multiplexed) frame, and pointer values corresponding to the channels are detected with respect to the assembled multiplexed frames, each to be displayed for each channel.

It is respectfully submitted that Zelig et al and Kibe, either separately or in combination, do not disclose or suggest the above described features of the present invention as recited in amended independent claims 1, 8 and 15.

Zelig et al is merely directed to a technique of transmitting data (Payload signal) in SONET/SDH signals via an IP network (for example, MPLS (Multi-protocol label switching)). In Zelig et al, the data (Payload signal) in the SONET/SDH signals are packetized and transmitted, and the original SONET/SDH signals are restored from the packet on the receiver side. And it is respectfully pointed out that Zelig et al is merely directed to a device in which channel pointers of the transmitter side contained in the SDH signals are directly sent to the

receiver side. Accordingly, it is respectfully submitted that there is no merit in indicating the values of channel pointers for comparison in the invention of Zelig et al, i.e., displaying the channel pointer values as according to the claimed present invention.

Kibe, moreover, is merely directed to a device which judges the justification function for the channel pointer values of SONET/SDH signals. That is, in the SONET/SDH signal transmission system of Kibe, when data of the channels are multiplexed and inserted into a frame, the location of insertion is displaced due to, for example, the phase difference between the multiplexed data and the frame into which the data is inserted. In Kibe, displacement of the location is absorbed by adjusting the channel pointer values, and the adjustment of the channel pointer values is called justification. In Kibe, the channel pointer values are limited within a predetermined range and when there are consecutive pointer values outside of this range, the data transmission cannot be properly carried out. And when values are outside of the predetermined range or some abnormal state occurs continuously a preset number of times, it is necessary to issue an alarm. In Kibe, when such an SONET/SDH signal process is carried out, it is necessary to check if the justification is properly functioning by analyzing the increment/decrement state of each channel pointer inserted into the SONET/SDH signal, the

range of the pointer values, and the like. Accordingly, in Kibe, the pointers of a plurality of channels inserted into the frame of the SONET/SDH signal are analyzed so as to check whether the justification is properly functioning for the plurality of channels at the same time.

The Examiner continues to assert that the combination of Zelig et al and Kibe renders obvious the present invention as recited in each of claims 1-20.

It is respectfully submitted, however, that the present invention is directed to a technique in which when large capacity data are transmitted by the virtual concatenation system in the SONET/SDH transmission system, the pointer values which indicate the transmission state of each channel, that is, transmission delays and variations in phase due to difference in clock between the plurality of small capacity channels and the large capacity channel, are associated with the respective channels when they are visually checked.

By contrast, according to Zelig et al, data (Payload signal) in SONET/SDH signals are transmitted via the IP network. That is, the SONET/SDH signals are packetized and transmitted, and the original SONET/SDH signals are restored from the packet on the receiver side. Therefore, in Zelig et al, the pointer values indicating the transmission states in the SONET/SDH signals are directly sent from the transmitter side to the receiver side. And

it is respectfully submitted that, in Zelig et al, there is no merit to display the values of the channel pointers for comparison, in the manner of the claimed present invention.

According to the claimed present invention, original SONET/SDH signals are transmitted via a lower-speed SONET/SDH communication network, and a pointer value indicating the transmission state of each channel at that time is displayed. And it is respectfully submitted that the claimed present invention is clearly different from Zelig et al.

Kibe, moreover, is merely directed to a technique of checking a justification function for the channel pointer values of each channel when data of a low group (low speed) are multiplexed, whereas the claimed present invention is directed not to check a justification function, but to display transmission delays and variations in phase due to the difference in clock between each of the plurality of small capacity channels and the large capacity channel, while associating them with each respective channel. Therefore, it is respectfully submitted that Kibe also is clearly different from the claimed present invention.

It is respectfully submitted, moreover, that Zelig et al and Kibe, either separately or in combination, do not disclose or suggest the features of the present invention as recited in amended independent claims 1, 8 and 15 whereby the frames that are received from a plurality of channels are assembled back into a multiplexed

(large capacity) frame, and whereby the pointer values corresponding to the channels are detected with respect to the assembled multiplexed frame, each to be displayed for each channel.

In view of the foregoing, it is respectfully submitted that even if Zelig et al and Kibe were combinable in the manner suggested by the Examiner, the features of the present invention as recited in amended independent claims 1, 8 and 15 would still not be achieved or rendered obvious. And it is respectfully submitted that amended independent claims 1, 8, 15, and claims 2-7, 9-14 and 16-20 respectively depending therefrom, clearly patentably distinguish over Zelig et al and Kibe, taken singly or in combination, under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

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